



00862.002866 (862.2866)

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
SUSUMU GOTO) Examiner: D. Vanore
Appln. No.: 09/330,154) Group Art Unit: 2881
Filed: June 11, 1999)
For: A PROJECTION APPARATUS FOR)
PROJECTING A PATTERN FORMED :
ON A MASK ONTO A SUBSTRATE)
AND A CONTROL METHOD FOR A :
PROJECTION APPARATUS) June 3, 2003
(As Amended)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY REMARKS

Sir:

Reconsideration and allowance of the subject application are respectfully solicited.

Claims 1, 3 through 15, and 17 through 40 are pending, with Claims 1, 15, 33, and 35 being independent.

In the January 27, 2003, final Official Action, Claims 1 through 11, 15 through 25, and 29 through 40 were again rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,225,637 B1 (Terashima, et al.). Claims 12, 13, 26, and 27 were again rejected

under 35 U.S.C. § 103 over Terashima, et al. in view of U.S. Patent No. 4,954,717 (Sakamoto, et al.) Claims 14 and 28 were again rejected under 35 U.S.C. § 103 over Terashima, et al. in view of Sakamoto, et al. and U.S. Patent No. 4,469,949 (Mori, et al.). All rejections are respectfully traversed.

Claims 1 and 15 variously recite, inter alia, moving a principal plane of the first unit in a direction of an optical axis of the projection optical system (Claim 1) or moving a principal plane of the first unit (Claim 15), so that an image distortion of the projection optical system is corrected, with changing of an on-axis distribution of a magnetic field generated by the first unit to move the principal plane of the first unit by changing a ratio of currents to be respectively supplied to the first and second magnetic lenses of the first unit (with Claim 15 further specifying that the change is on the basis of the correction information).

Claim 33 recites, inter alia, moving a principal plane of the magnetic lens n a direction of an axis of the projection optical system so as to adjust an image distortion of the projection optical system, wherein the controller changes an on-axis distribution of a magnetic field generated by the magnetic lens to move the principal plane of the magnetic lens by controlling a current to be supplied to the magnetic lens.

Claim 35 recites, inter alia, changing a ratio of currents to be respectively supplied to the first and second magnetic lenses to move a first principal plane of the first unit in a direction of an optical axis of the projection optical system and to change a ratio of currents to be respectively supplied to the third and fourth magnetic lenses to move a second principal plane of the second unit in the direction of the optical axis so as not to change a magnification of the projection optical system while correcting an image

distortion of the projection optical system, wherein a moving amount of the second principal plane is equal to a value obtained by multiplying a moving amount of the first principal plane by a magnification of the projection optical system, and a moving direction of the first principal plane is the opposite direction to that of the second principal plane.

However, Applicant respectfully submits that none of Terashima, et al., Sakamoto, et al., and Mori, et al., even in the proposed combinations, assuming, arguendo, that the documents could be combined, discloses or suggests at least the above-discussed claimed features as recited, inter alia, in Claims 1, 15, 33, and 35.

The May 13, 2003, Advisory Action states that Terashima, et al. “has at least four lens devices (Fig. 20) and a focus control system coupled to said lenses (1037) for correcting optical distortion.” This statement is respectfully traversed.

Applicant respectfully submits that such disclosure in Terashima, et al. has nothing to do with (a) moving the principal plane of the unit by changing an on-axis distribution of a magnetic field so that an image distortion of the projection optical system is corrected or adjusted as in the above-discussed claimed features as in Claims 1, 15, and 33, and (b) moving the principal planes so as not to change a magnification while correcting an image distortion, using the specified moving amounts as in Claim 35. In more detail, Applicant respectfully submits that in Terashima, et al.:

- (a) the condenser lens 103 of Terashima, et al. does not correct distortion as claimed but instead converts electron beams into collimated electron beams;
- (b) the reduction electron optical system 108/8/1008 is made up of two electron lenses 108A/8A/1008A and 108B/8B/1008B, however,

those lenses only adjust the magnification of the reduction electron optical system, and are not designed to move the principal plane of the unit by changing an on-axis distribution of a magnetic field, with adjusting or correcting of distortion as claimed;

- (c) the aberration correction optical system 107/7/1007 is not composed of magnetic lenses, and since the aberration correction optical system 107/7/1007 comprises, e.g., a unipotential lens (electrostatic lens) made up of three electrodes (col. 6, lines 11-20, col. 13, lines 43-50, and col. 19, lines 47-55), the aberration correction optical system 107/7/1007 does not have a function in which a magnetic field distribution is changed as claimed;
- (d) the rotation lens 110/10/1010 only adjusts the rotation of image; and
- (e) the focus correction lens 113/13/1013 only adjusts the focal point position of the image.

The Advisory Action also stated that “the Examiner has interpreted distortion to mean a lack of focus of a beam.” This statement is respectfully traversed. Applicant respectfully submits that lack of focus of a beam refers to shift of an image plane from a target plane, whereas distortion is one of the 5 Seidel aberrations (i.e., spherical aberration, comatic aberration, astigmatism, field curvature, and distortion).

Furthermore, the assertion in the Official Action that claimed features constitute “intended use” or are “inherent” in the cited documents is respectfully traversed by Applicant as being without support. Applicant further respectfully submits that there has been no showing of any indication of motivation in the cited documents that would


lead one having ordinary skill in the art to arrive at the above-discussed claimed features as recited, inter alia, in Claims 1, 15, 33, and 35.

The dependent claims are also submitted to be patentable because they set forth additional aspects of the present invention and are dependent from independent claims discussed above. Therefore, separate and individual consideration of each dependent claim is respectfully requested.

Applicant submits that this application is in condition for allowance, and a Notice of Allowance is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicant

Registration No. _____

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
DSG/llp
DC_MAIN 134674 v 1